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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,670	04/30/2001	Radhika Thekkath	MTEC011/00US	8985

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EXAMINER

GROSS, KENNETH A

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,670

Applicant(s)

THEKKATH ET AL.

Examiner

Kenneth A Gross

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 3 and 16 objected to because of the following informalities: The term “trace data outstanding” should be “outstanding trace data [outstanding]”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. Claims 3, 5, 16, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, Claims 3 and 16 recite the limitation “a number of instructions that have trace data outstanding”. What does it mean for data to be “outstanding”? Claims 5 and 18 recite the limitation “load data is transferred on said trace data bus prior to receipt of said load data from memory.” Does this imply that load data is being received *from* memory? Furthermore, the term ‘prior to’ implies that the step of receiving load data from memory already happened. There is no indication of this step in parent claims.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1, 2, 7, 8, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Miyake (U.S. Patent Number 5,404,470).

In regard to Claim 1, Miura teaches a trace data bus configured to transfer trace data in a trace data transfer order (Column 4, lines 56-62) and a trace data order determination element configured to generate a trace data order signal (Column 8, lines 20-33). Although, Miura teaches that the trace data order is the same as the order of execution of the instructions (Column 4, lines 50-55), Miura does not teach that the trace data transfer order is different from an instruction order. Miyake, however, does teach executing instructions in an order that is different from a predetermined execution order (Column 1, lines 45-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to build a system including a trace data bus configured to transfer trace data in a trace data transfer order and a trace data order determination element configured to generate a trace data order signal, where the trace data order is execution order, as taught by Miura, where the execution order of instructions is different from a predetermined instruction order, as taught by Miyake, since control flow of a program, due to branching instructions, is seldom in the same order as a predetermined order of instructions.

In regard to Claim 2, Miura teaches transferring a trace data order signal on a trace data bus (Column 8, lines 27-33).

In regard to Claim 7, Claim 7 is a product claim that corresponds with Claim 1, and is rejected for the same reasons as Claim 1, where Miura teaches a product for use in the system of Claim 1 (Figure 3).

In regard to Claim 8, Claim 8 is a method Claim that corresponds with Claim 1, and is rejected for the same reasons as Claim 1, where it would be obvious to embed computer code for carrying out the function of the computer system taught in Claim 1, since program code is the way in which a system carries out a function, and where it would be further obvious to transmit this program code to the computer system, since the system will need to receive this code in order to use it on the computer system.

In regard to Claim 9, the examiner takes official notice that the Internet is a well-known medium for transferring computer code from computer systems located in different physical locations.

In regard to Claim 10, Claim 10 is a data signal claim that corresponds directly with Claim 8, and is rejected for the same reasons as Claim 8, where it would be obvious to embody a data signal on a transmission medium, since when transferring data between computers, the information must comprise a electrical data signal in order for the computer to understand the information sent.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Miyake (U.S. Patent Number 5,404,470) and further in view of Hicks et al. (U.S. Patent Number 5,150,470).

In regard to Claim 3, Miura and Miyake teach the system of Claim 1, but do not teach that the trace data order signal identifies a number of instructions that have trace data

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outstanding. Hicks, however, does teach making an indication of instructions that have outstanding data (Column 5, lines 14-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to build the system of Claim 1, as taught by Miura and Miyake, where the trace data order signal identifies a number of instructions that have trace data outstanding, as taught by Hicks, since this indicates data that needs to be handled before other data can be processed.

4. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Miyake (U.S. Patent Number 5,404,470) and further in view of Levine et al. (U.S. Patent Number 5,878,208).

In regard to Claim 4, Miura and Miyake teach the system of Claim 1, but do not teach that the trace data id load data. Levine, however, does teach collecting trace data, where the trace data is load data (Column 3, lines 35-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to build the system of Claim 1, as taught by Miura and Miyake, where the trace data is load data, as taught by Levine, because monitoring load instructions increases understanding of a program's performance.

In regard to Claim 5, Miura teaches transmitting the address of a traced instruction prior to transmitting the traced data of the instruction (Column 7, lines 45-53).

In regard to Claim 6, Miura teaches transmitting the address and trace data of a traced instruction (Column 7, lines 45-53) when an instruction executer comes across a memory access instruction (Column 8, lines 9-11), hence only when the trace data is available.

5. Claims 11-15 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Miyake (U.S. Patent Number 5,404,470) and further in view of Swaine et al. (U.S. Publication Number 2002/0147965).

In regard to Claim 11, Miura teaches transferring trace data for a plurality of instructions in a certain order (Column 8, lines 20-26 and Column 4, lines 53-55). Although, Miura teaches that the trace data order is the same as the order of execution of the instructions (Column 4, lines 50-55), Miura does not teach that this order is different from a program sequence of a plurality of instructions. Miyake, however, does teach executing instructions in an order that is different from a predetermined execution order (Column 1, lines 45-47). Neither Miura nor Miyake teach that the transfer of trace data for a particular instruction is specified relative to at least one outstanding instruction. Swaine, however, does teach marking trace data for an outstanding instruction so that the trace data for the outstanding instruction precedes the trace data of a particular instruction (Page 4, Column 1, lines 3-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of transferring trace data for a plurality of instructions in a certain order, as taught by Miura, where this order is different from a program sequence of a plurality of instructions, as taught by Miyake, since control flow of a program, due to branching instructions, is seldom in the same order as a predetermined order of instructions, further the transfer of trace data for a particular instruction is specified relative to at least one outstanding instruction, as taught by Swaine, since this allows instructions that have late data to be sent when they retrieve their values, resulting in a complete data trace.

In regard to Claim 12, Swaine teaches that said transfer of trace data for said particular instruction is specified relative to outstanding instructions, where the number of outstanding instructions can be one or more (Page 4, Column 1, lines 3-14).

In regard to Claim 13, Swaine teaches transferring a data placeholder for a particular instruction, which indicates the trace data, is still outstanding (Page 1, Column 2, lines 45-52).

In regard to Claims 14 and 15, the limitations of Claims 14 and 15 have already been addressed in Claims 12 and 13 respectively, and are rejected for the same reasons as these Claims.

In regard to Claim 20, Miura teaches tracing a plurality of instructions having an instruction order (Column 4, lines 50-55) and transferring trace data when it become available (Column 8, lines 9-11) for a plurality of instructions in a certain order (Column 8, lines 20-26 and Column 4, lines 53-55). Although, Miura teaches that the trace data order is the same as the order of execution of the instructions (Column 4, lines 50-55), Miura does not teach that this order is different from a program sequence of a plurality of instructions. Miyake, however, does teach executing instructions in an order that is different from a predetermined execution order (Column 1, lines 45-47). Neither Miura nor Miyake teach transmitting a signal along with said transferred trace data that identifies a number of instructions that have trace data outstanding. Swaine teaches transferring a data placeholder for a particular instruction, which indicates the trace data, is still outstanding (Page 1, Column 2, lines 45-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of tracing a plurality of instructions having an instruction order and transferring trace data when it become available for a plurality of instructions in a certain order, as taught by Miura, where this

order is different from a program sequence of a plurality of instructions, as taught by Miyake, since control flow of a program, due to branching instructions, is seldom in the same order as a predetermined order of instructions, further transmitting a signal along with said transferred trace data that identifies a number of instructions that have trace data outstanding, since this will allow late binding of a value to this placeholder.

In regard to Claim 21, Swaine teaches tracing load instructions, resulting in load trace data (Page 1, Column 2, lines 19-37) and that the transmitted signal identifies the number of instructions that have load data outstanding (Page 1, Column 2, lines 45-52).

In regard to Claim 22, Miura teaches transmitting the address of a traced instruction prior to transmitting the traced data of the instruction (Column 7, lines 45-53).

In regard to Claim 23, Miura teaches transmitting the address and trace data of a traced instruction (Column 7, lines 45-53) when an instruction executer comes across a memory access instruction (Column 8, lines 9-11), hence only when the trace data is available.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Miyake (U.S. Patent Number 5,404,470) and further in view of Swaine et al. (U.S. Publication Number 2002/0147965) and Hicks et al. (U.S. Patent Number 5,150,470).

In regard to Claim 16, Claim 3 addresses the limitations of Claim 16, and Claim 16 is rejected for the same reasons as Claim 3.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Miyake (U.S. Patent Number 5,404,470) and further in

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view of Swaine et al. (U.S. Publication Number 2002/0147965) and Levine et al. (U.S. Patent Number 5,878,208).

In regard to Claims 17-19, Claims 4-6 address the limitations of Claims 17-19, respectively, and Claims 17-19 are rejected for the same reasons as Claims 4-6, respectively.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Gross whose telephone number is (703) 305-0542. The examiner can normally be reached on Mon-Fri 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

KAG


TUAN DAM
SUPERVISORY PATENT EXAMINER